II. REMARKS

In the Office Action mailed August 10, 2007, the Examiner: (1) rejected claim 44 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent 6,684,061 to Yost ("Yost"); (2) rejected claims 1 and 33 under 35 U.S.C. § 103(a) as unpatentable over Yost in view of U.S. Patent 6,611,795 to Cooper ("Cooper"); (3) rejected claims 4-7, 16-17, 26-27, 29-32, and 36-42 under 35 U.S.C. § 103(a) as unpatentable over the combination of Yost and Cooper in view of European Patent Application EP1102415 by Mannermaa ("Mannermaa"); (4) rejected claim 8 under 35 U.S.C. § 103(a) as unpatentable over the combination of Yost, Cooper, and Mannermaa in view of U.S. Patent 5,983,160 to Horslund ("Horslund"); (5) rejected claims 9-11 under 35 U.S.C. § 103(a) as unpatentable over the combination of Yost, Cooper, and Horslund; (6) rejected claims 12-15 and 18-25 under 35 U.S.C. § 103(a) as being unpatentable over the combination of Yost and Cooper in view of U.S. Patent 5,799,010 to Lomp et al. ("Lomp"); and (7) objected to claims 2-3 and 34-35 as being dependent on a rejected base claim, but indicated that claims 2-3 and 34-35 would be allowable if rewritten in independent format. Applicant thanks the Examiner for indicating allowable subject matter. Applicant requests reconsideration and allowance of the rejected claims for the reasons set forth below.

A. Response to Examiner's Rejection of Claim 44 under § 102(b)

The Examiner rejected claim 44 as unpatentable over Yost. (Office Action, page 2) In response, Applicant submits that the rejection is improper and should be withdrawn for at least the reason that Yost fails to show or suggest "means for estimating a statistical variance among a plurality of discriminator values formed in a tracking loop, wherein the tracking loop tracks the satellite carrier signal." Applicant's discriminator values formed in the tracking loop are "typically a function of the phase and/or frequency error between the incoming satellite carrier signal and the replica carrier signal." (Applicant's Specification, paragraph [0068]) In contrast to Applicant's variance estimate based on an RF signal characteristic (i.e., the phase and/or frequency error), Yost teaches a statistical estimate based on a digital signal characteristic (i.e., the Bit Error Rate (BER)). In particular, Yost discloses measuring the BER of the digital signal rather than discriminator values formed in a carrier tracking loop of an RF satellite carrier signal. (See Yost, col. 6, lines 29-31) Therefore, Applicant submits that Yost does not anticipate claim 44 for at least the reason that Yost fails to show or suggest "means for estimating a statistical variance among a plurality of

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discriminator values formed in a tracking loop, wherein the tracking loop tracks the satellite carrier signal."

B. Response to Examiner's Rejection of Claims 1 and 33 under § 103(a)

The Examiner rejected claims 1 and 33 as unpatentable over the combination of Yost and Cooper. (Office Action, pages 3-5) In response, Applicant submits that the rejection is improper and should be withdrawn for at least the reason that Yost and Cooper do not show or suggest, individually or in combination, "calculating a statistical variance estimate (V) [...] based on a plurality (K) of discriminator values (d_k) formed in a carrier tracking loop" as recited in claims 1 and 33.

As set forth in Section II-A, *supra*, Yost discloses measuring the Bit Error Rate (BER) of the digital signal rather than discriminator values formed in a carrier tracking loop. (See Yost, col. 6, lines 29-31) Therefore, Yost fails to teach "calculating a statistical variance estimate (V) [...] based on a plurality (K) of discriminator values (d_k) formed in a carrier tracking loop" as recited in claims 1 and 33.

The addition of Cooper does not overcome the deficiency of Yost for at least the reason that Applicant's review of Cooper finds nothing to show or suggest "calculating a statistical variance estimate (V) [...] based on a plurality (K) of discriminator values (d_k) formed in a carrier tracking loop" as recited in claims 1 and 33 and indeed, the Examiner does not cite Cooper as teaching these claim elements. In contrast to claims 1 and 33, Cooper teaches using "error vector magnitude values...to create continually updated statistical mean and variance estimates that statistically describe the duration and period of noise burst events, which statistics are utilized to calculate the optimum forward error correction parameters." (Cooper, col. 8, line 67 - col. 9, line 4) Though Cooper discloses calculating a variance, Cooper's calculated variance is a function of the error magnitude vector rather than Applicant's "plurality (K) of discriminator values (d_k) formed in a carrier tracking loop." Recall that Applicant's "discriminator values (d_k) formed in a carrier tracking loop" are "typically a function of the phase and/or frequency error between the incoming satellite carrier signal and the replica carrier signal." (Applicant's Specification, paragraph [0068]) In contrast, Cooper's disclosed "error vector magnitude...represents the uncertainty that a specific digital bit was in fact decoded correctly." Therefore, Applicant submits that Cooper's calculation

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of a statistical variance based on error vector magnitude measurements does not teach calculating a statistical variance estimate based on a plurality of discriminator values.

Therefore, Applicant submits that claims 1 and 33 are patentable over the combination of Yost and Cooper for at least the reason that the Yost-Cooper combination does not show or suggest, individually or in combination, "calculating a statistical variance estimate (V) [...] based on a plurality (K) of discriminator values (d_k) formed in a carrier tracking loop" as recited in claims 1 and 33.

C. Response to Examiner's Rejection of Claims 4-7, 16-17, 26-27, 29-32, and 36-42 under 35 U.S.C. § 103(a)

The Examiner rejected claims 4-7, 16-17, 26-27, 29-32, and 36-42 as unpatentable over the combination of Yost, Cooper, and Mannermaa. (Office Action, page 5) In response, Applicant submits that the rejection is improper and should be withdrawn for at least the reason that Yost, Cooper, and Mannermaa do not show or suggest, individually or in combination, "calculating a statistical variance estimate (V) [...] based on a plurality (K) of discriminator values (d_k) formed in a carrier tracking loop" as recited in claims 1 and 33, from which (i) claims 4-7, 16-17, 26-27, and 29-32 and (ii) claims 36-42 depend, respectively.

As set forth in Section II-B, *supra*, neither Yost nor Cooper teach "calculating a statistical variance estimate (V) [...] based on a plurality (K) of discriminator values (d_k) formed in a carrier tracking loop" as recited in claims 1 and 33.

The addition of Mannermaa does not overcome the deficiencies of Yost and Cooper for at least the reason that Applicant's review of Mannermaa finds nothing to show or suggest "calculating a statistical variance estimate (V) [...] based on a plurality (K) of discriminator values (d_k) formed in a carrier tracking loop" as recited in claims 1 and 33 and indeed, the Examiner does not cite Mannermaa as teaching these claim elements. In contrast to claims 1 and 33, Mannermaa describes using discriminator outputs as inputs for steering the local PRN reference code generated by the local code generator. (Mannermaa, page 5, lines 55-58) Mannermaa's disclosure of steering a local PRN reference code with discriminator outputs does not teach "calculating a statistical variance estimate (V) [...] based on a plurality (K) of discriminator values (d_k) formed in a carrier tracking loop" as recited in claims 1 and 33.

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Therefore, Applicant submits that claims 4-7, 16-17, 26-27, 29-32, and 36-42 are patentable over the combination of Yost, Cooper, and Mannermaa for at least the reason the Yost-Cooper-Mannermaa combination does not show or suggest, individually or in combination "calculating a statistical variance estimate (V) [...] based on a plurality (K) of discriminator values (d_k) formed in a carrier tracking loop" as recited in claims 1 and 33, from which (i) claims 4-7, 16-17, 26-27, and 29-32 and (ii) claims 36-42 depend, respectively.

D. Response to Examiner's Rejection of Claim 8 under 35 U.S.C. § 103(a)

The Examiner rejected claim 8 as unpatentable over the combination of Yost, Cooper, Mannermaa, and Horslund. (Office Action, page 9) In response, Applicant submits that the rejection is improper and should be withdrawn for at least the reason that Yost, Cooper, Mannermaa, and Horslund do not show or suggest, individually or in combination, "calculating a statistical variance estimate (V) based on a plurality (K) of discriminator values (d_k) formed in a carrier tracking loop" as recited in claim 1, from which claim 8 depends.

First, claim 8 depends from claim 1 and the combination of Yost, Cooper, and Mannermaa does not show or suggest each and every element of claim 1 as set forth in Section II-C, *supra*. Second, the addition of Horslund does not overcome the deficiencies of Yost, Cooper, and Mannermaa for at least the reason that Applicant's review of Horslund finds nothing to show or suggest "calculating a statistical variance estimate (V) based on a plurality (K) of discriminator values (d_k) formed in a carrier tracking loop" as recited in claim 1, from which claim 8 depends, and indeed, the Examiner does not cite to Horslund as teaching this element.

Therefore, Applicant submits that claim 8 is patentable over the combination of Yost, Cooper, Mannermaa, and Horslund for at least the reason that the Yost-Cooper-Mannermaa-Horslund combination does not teach "calculating a statistical variance estimate (V) based on a plurality (K) of discriminator values (d_k) formed in a carrier tracking loop" as recited in claim 1, from which claim 8 depends.

E. Response to Examiner's Rejection of Claims 9-11 under 35 U.S.C. § 103(a)

The Examiner rejected claims 9-11 as unpatentable over the combination of Yost, Cooper, and Horslund. (Office Action, page. 10) In response, Applicant submits that the rejection is improper and should be withdrawn for at least the reason that Yost, Cooper, and Horslund do not

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show or suggest, individually or in combination "calculating a statistical variance estimate (V) based on a plurality (K) of discriminator values (d_k) formed in a carrier tracking loop" as recited in claim 1, from which claims 9-11 depend.

First, claims 9-11 depend from claim 1, and the combination of Yost and Cooper do not teach every element of claim 1 as set forth in Section II-B, *supra*. Second, the addition of Horslund does not overcome the deficiencies of Yost and Cooper for at least the reason that Applicant's review of Horslund finds nothing to show or suggest "calculating a statistical variance estimate (V) based on a plurality (K) of discriminator values (d_k) formed in a carrier tracking loop" as recited in claim 1, from which claims 9-11 depend, and indeed, the Examiner does not cite Horslund as teaching this element.

Therefore, Applicant submits that claims 9-11 are patentable over the combination of Yost, Cooper, and Horslund for at least the reason that the Yost-Cooper-Horslund combination does not teach "calculating a statistical variance estimate (V) based on a plurality (K) of discriminator values (d_k) formed in a carrier tracking loop" as recited in claim 1, from which claims 9-11 depend.

F. Response to Examiner's Rejection of Claims 12-15 and 18-25 under 35 U.S.C. § 103(a)

The Examiner rejected claims 12-15 and 18-25 as being unpatentable over the combination of Yost, Cooper, and Lomp. In response, Applicant submits that the rejection is improper and should be withdrawn for at least the reason that Yost, Cooper, and Lomp do not show or suggest, individually or in combination "calculating a statistical variance estimate (V) based on a plurality (K) of discriminator values (d_k) formed in a carrier tracking loop" as recited in claim 1, from which claims 12-15 and 18-25 depend.

First, claims 12-15 and 18-25 depend from claim 1, and the combination of Yost and Cooper does not teach every element of claim 1 for at least the reasons set forth in Section II-B, *supra*. Second, the addition of Lomp does not overcome the deficiencies of Yost and Cooper for at least the reason that Applicant's review of Lomp finds nothing to show or suggest "calculating a statistical variance estimate (V) based on a plurality (K) of discriminator values (d_k) formed in a carrier tracking loop" as recited in claim 1, from which claims 12-15 and 18-25 depend, and indeed, the Examiner does not cite Lomp as teaching this element.

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Therefore, Applicant submits that claims 12-15 and 18-25 are patentable over the combination of Yost, Cooper, and Lomp for at least the reason that the Yost-Cooper-Lomp combination does not teach "calculating a statistical variance estimate (V) based on a plurality (K) of discriminator values (d_k) formed in a carrier tracking loop" as recited in claim 1, from which claims 12-15 and 18-25 depend.

III. CONCLUSION

Applicant submits that the present application is in condition for allowance, and notice to that effect is hereby requested. Should the Examiner feel that further dialog would advance the subject application to issuance, the Examiner is invited to telephone the undersigned at (312) 913-0001.

Respectfully submitted,

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